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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 March 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-23</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-23</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Applicant's request for reconsideration of the finality of the rejection of the last
Office action of January 28, 2008 is persuasive and, therefore, the finality of that action
is withdrawn.

Double Patenting

2.   The nonstatutory double patenting rejection is based on a judicially created
doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the
unjustified or improper timewise extension of the "right to exclude" granted by a patent
and to prevent possible harassment by multiple assignees.   A nonstatutory
obviousness-type double patenting rejection is appropriate where the conflicting claims
are not identical, but at least one examined application claim is not patentably distinct
from the reference claim(s) because the examined application claim is either anticipated
by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140
F.2d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29
USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir.
1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422
F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ
644 (CCPA 1969).

        A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d)
may be used to overcome an actual or provisional rejection based on a nonstatutory

double patenting ground provided the conflicting application or patent either is shown to

be commonly owned with this application, or claims an invention made as a result of

activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a

terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with

37 CFR 3.73(b).

3.   Claims *1, 5, 7, 9, 12-13, 21, and 23* are rejected on the ground of nonstatutory

obviousness-type double patenting as being unpatentable over claims 1-26 of U.S.

Patent No. 7,386,850. Although the conflicting claims are not identical, they are not

patentably distinct from each other because of the reasons set forth below.

Regarding claims *1, 5, 7, 9, 12-13, 21,* and *23*, claims 1, 3, 5, 19, 21, 27, and 39-

40 of the patent 7,386,850 are narrower in scope than the claims *1, 5, 7, 9, 12-13, 21,*

and *23* of this instant application. Claim 1 of the patent 7,386,850 is basically a

combination of these claims *1, 7,* and *9*. Omission of an element and its function is an

obvious expedient if the remaining elements perform the same functions as before (*In re

KARLSON (CCPA) 136 USPQQ 184 (1963)*).   Stated differently, simply broadening the

claims would have been obvious *(In re Van Ornum, 214 USPQ 761 CCPA 1982)*.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 1 recites an algorithm for computing probability steps and it does not include any tangible computer or network elements. The algorithm of claim 1 appears to be a manipulation of an abstract idea, given that it does not produce any kind of a useful, concrete and tangible result, and therefore the claim does not fall within at least one of the four enumerated categories of patentable subject matter recited in section 101 (i.e., process, machine, manufacture, or composition of matter).

The recited method of claim 1 does not apply, involve, or use the technological arts since all of the recited steps can be performed by the use of a pencil and paper. The claimed invention, as a whole, is not recited the other statutory class (the thing or products) to which it is tied, for example by identifying the apparatus (technological arts) that accomplishes the method steps, as explained above claim 1 is deemed to be directed to non-statutory subject matter.

Claims 1-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-23 according to the specification are implemented in software (see instant application's specification - page 7 lines 16-27,

and page 8 lines 6-7, and Fig. 1, 122 Customer Forecast Contact, 124 Agent Arrival

Prediction). Therefore, these claims are interpreted as software claims which are non-

statutory. Software, or logic, or any type of "functional descriptive material", is not

statutory when claimed as descriptive material, per se. See pages 50-57 of "Interim

Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility".

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1-6, 8-17, and 19-23 are rejected under 35 U.S.C. 102(b) as being

anticipated by David (US Patent Number 5,640,445).

        Regarding claims 1 and 13-14, David teaches a method for forecasting

availability of a resource for a work assignment (Figs. 1-4, column 2, lines 64-65, i.e.,

call assignments method in which agent availability and call answers are based on

probability statistics), wherein said method comprises the execution of program

instructions that are recorded in a computer readable storage medium, wherein said

method is performed by operation of a logic circuit (Fig. 1, 11 CPU Call Manager, 13

Call Processor, 15 Hard Disk Storage, column 1, lines 23-44, i.e., CPU and Call

Processor read on a logic circuit, and a memory such as hard disk storage reads on

computer storage medium), comprising:

selecting a forecast horizon (Fig. 2, 10, IDLE AGENT PREDICTION, AGENT

TALK TIME, AGENT AFTER-CALL WORK TIME "wrap-up", column 4, lines 20-26, i.e.,

probability for agent talk times and after-call work "wrap-up" to forecast agent availability

within a time window);

determining for a first segment (Fig. 3, AGENT TALK TIME) of a first task a first

probability (Fig. 3, PDF1 Probability Density Function) related to an availability of at

least a first resource within said forecast horizon (Fig. 3, column 4 lines 22-26, and

column 5, lines 48-57);

determining for a second segment (Fig. 4, AGENT AFTER-CALL WORK) of said

first task a second probability (Fig. 4, PDF2) related to said availability of said at least a

first resource within said forecast horizon, wherein said first and second probabilities are

different from one another (Fig. 4, column 4 lines 22-26, and column 5, lines 58-67);

combining said determined first probability and said determined second

probability; and normalizing a result of said combining said determined first and second

probabilities to obtain a probability of agent availability within said selected forecast

(Figs. 3-4, column 7, lines 35-37, i.e., the sum calculated for each agent is used to

obtain a probability of the agent availability).

Regarding claim 2, David teaches the method, wherein said first resource

comprises a first agent (Fig. 3, AGENT 1 TALK TIME), wherein said first probability (Fig.

3, PDF1 Probability Density Function) comprises a probability that said first agent will complete a talk state within said selected horizon, said first probability derived from a time said agent has been in said talk state and a probability distribution for agent time in said talk state (Fig. 3, column 4 lines 22-26, and column 5, lines 48-57),

and wherein said second probability (Fig. 4, PDF2) comprises a probability that said first agent (Fig. 4, AGENT 1 AFTER-CALL WORK TIME "wrap-up") will complete a wrap-up state within said selected time horizon, said second probability derived from a probability distribution for agent time in said wrap-up state (Fig. 4, column 4 lines 22-26, and column 5, lines 58-67).

Regarding claims 3 and 4, David teaches the method, wherein said first probability (Fig. 3, PDF1) is determined for an actual time said at least a first agent has been in said talk state (Fig. 3, AGENT 1 TALK TIME), and wherein said second probability (Fig. 4, PDF2) is determined for zero time in said wrap-up state (Fig. 4, AGENT 1 AFTER-CALL WORK TIME "wrap-up"), and wherein said first resource comprises a first agent, wherein said first probability comprises a combination of a probability that said first agent will complete a talk state within said selected forecast horizon and a probability that said first agent will complete a wrap-up state within said selected forecast horizon, and wherein said second probability comprises a probability that said at least a first agent will complete a total handle time state within said selected forecast horizon (Fig. 1, 11, Figs. 3-4, column 4, lines 29-41).

Regarding claims 5 and 6, David teaches a method wherein said combining comprises adding said first and second probabilities; and calculating a product of said determined first probability and said determined second probability, and wherein said normalizing comprises dividing said product by two (Fig. 5, column 6, lines 10-17).

Regarding claim 8, David teaches the method comprising: determining an a priori probability of completion of said talk state before an amount of time equal to an amount of time said first agent has been in said talk state has elapsed; computing a product of said a priori probability and said first ratio to obtain a first weight (Fig. 5, PDF1 WEIGHT); computing a product of said first weight and said first forecast to obtain a first weighted forecast; subtracting said first weight from one to obtain a second weight; computing a product of said second weight (Fig. 5, PDF2 WEIGHT) and said second forecast to obtain a second weighted forecast; and computing a composite forecast by computing a sum of said first weighted forecast and said second weighted forecast (Fig. 5, CALCULATED PDF1 WEIGHT, CALCULATED PDF1 WEIGHT, column 5, lines 48-67, and column 6 line 51 through column 7 line 9).

Regarding claims 9-10, and 16, David teaches the method, wherein a probability of arrival is calculated for a plurality of resources, wherein said probabilities of arrival for each of said plurality of resources are combined to obtain said first forecast, and wherein said combining said agent arrival probabilities for each of said plurality of agents to obtain a first forecast comprises: aggregating a supply of agents as a sum of

probabilities of arrival of each individual agent included in said supply of agents. (Figs. 3-5, column 7, lines 6-40).

Regarding claims 11-12, and 23, David teaches the method, wherein said selected forecast horizon comprises a forecast time until an outbound call is completed to a live person, and comprising using said first forecast to determine whether or not to place an outgoing call, further comprising means for placing outbound calls, wherein said agent arrival probability is provided as an input to said means for placing outbound calls (Figs. 1-5, CALCULATE NUMBER OF CALLS TO DIAL, column 7 lines 35-40).

Regarding claim 15, David teaches a method for forecasting arrivals of agents (Figs. 1-4, column 2, lines 64-65, i.e., call assignments method in which agent availability and call answers are based on probability statistics), comprising:

selecting a forecast horizon; forecasting the number of agents available within said selected horizon, said forecasting including (Fig. 2, 10, IDLE AGENT PREDICTION, AGENT TALK TIME, AGENT AFTER-CALL WORK TIME "wrap-up", column 4, lines 20-26, i.e., probability for agent talk times and after-call work "wrap-up" to forecast agent availability within a time window):

determining a probability of completion of talk state (Fig. 3, AGENT TALK TIME for AGENT #1 to AGENT #N) within the forecast horizon for each of a plurality of agents (Fig. 3, column 4 lines 22-26, and column 5, lines 48-57);

determining a probability of completion of wrap-up state (Fig. 4, AGENT AFTER-

CALL WORK "wrap-up" for AGENT #1 to AGENT #N) within the forecast horizon for

each of said plurality of agents assuming each is at the start of wrap-up (Fig. 4, column

4 lines 22-26, and column 5, lines 58-67);

for each of said plurality of agents, combining said determined probability of

completion of talk state (Fig. 3, Sum of Weights for PDF1) and said determined

probability of completion of wrap-up state (Fig. 4, Sum of Weight for PDF2) to obtain an

agent arrival probability for each of said plurality of agents within said forecast horizon;

and combining said agent arrival probabilities for each of said plurality of agents to

obtain a first forecast (Figs. 3-4, column 7, lines 35-37, i.e., the sum calculated for each

agent is used to obtain a probability of the agent availability).

Regarding claim 17, David teaches the method, further comprising initiating an

outbound call when said first forecast indicates an excess supply of agents (column 8

lines 28-33).

Regarding claim 19, David teaches the method, wherein said first forecast is

provided as an input to a predictive dialer (Fig. 1, 11 CALL MANGER, Fig. 2, 16, column

5 lines 27-35).

Regarding claim 20, David teaches a work distribution system (Figs. 1-9),

comprising:

means for predicting a time to a next work item requiring an agent (Fig. 1, Fig. 2,

10 IDLE AGENT PREDICTION);

means for accessing a first agent work segment statistic (Fig. 2, 10 AGENT

TALK TIME);

means for accessing a second agent work segment statistic (Fig. 2, AGENT

AFTER CALL WORK TIME);

means for determining a first probability (Fig. 3, PDF1) of completing said first

agent work segment (Fig. 3, AGENT TALK TIME) within said predicted time at an

elapsed time in said first work segment by applying at least said first agent work

segment statistic (Fig. 3, column 4 lines 22-26, and column 5, lines 48-57);

means for determining a second probability (Fig. 4, PDF2) of completing said

second agent work segment (Fig. 4, AGENT AFTER CALL WORK TIME) within said

predicted time at zero elapsed time in said second work segment by applying at least

said second agent work segment statistic (Fig. 4, column 4 lines 22-26, and column 5,

lines 58-67); and

means for combining said first and second probabilities to obtain an agent arrival

probability within said predicted time (Figs. 3-5, column 7, lines 35-37, i.e., the sum

calculated for each agent is used to obtain a probability of the agent availability).

Regarding claim 21, David teaches the system, further comprising means for

combining agent arrival probabilities for each of a plurality of agents to obtain said agent

arrival probability within said predicted time (Fig. 3, Sum of Weights for PDF1, Fig. 4,

Sum of Weight for PDF2, column 7, lines 35-37, i.e., the sum calculated for each agent

is used to obtain a probability of the agent availability).

Regarding claim 22, David teaches the system, further comprising: means for

accessing a third agent work segment statistic (Fig. 3 AGENT TALK TIME for AGENT

#1 to AGENT #N, Fig. 4, AGENT AFTER-CALL WORK TIME for AGENT #1 to AGENT

#N), said third agent work segment spanning said first and second work segments; and

means for determining a third probability of completing said third agent work segment

within said predicted time at an elapsed time in said third work segment, wherein said

means for combining comprises means for combining said first, second and third

probabilities (Fig. 3, Sum of Weights for PDF1, Fig. 4, Sum of Weights for PDF2) to

obtain an agent arrival probability within said predicted time (Figs. 3-4, column 5 line 48

through column 6 line 9).

Claim Rejections - 35 USC § 103

4.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

5.   Claims 7 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

David as applied to claim 2 above, in view of Mullen (U.S. Publication 2003/0018762

A1).

Regarding claim 7, David discloses everything claimed as applied above (see claims 1 and 2). However, David does not specifically disclose the detail to compute the variances. Although David has disclosed a priori probability and the weighted forecasts (Figs. 1-5, column 4, lines 10-13, column 5, lines 48-67, and column 7, lines 10-15).

In the same field of endeavor, Mullen teaches a forecaster to compute variances of completion of servicing the call within the selected forecast horizon (Mullen, Fig. 1, 122, Fig. 2, 214, paragraph [0020], paragraph [0057]-[0058]). The advantage of Mullen method is to avoid annoying call recipients (live answer – agent was not available) with outbound calls (Mullen, paragraph [0061]).

It would have been obvious to a person of ordinary in the art at the time of the invention was made to apply a known technique to a known device (i.e., computing the variances of completion of servicing the call) ready for improvement to yield predictable results (see KSR – MPEP 2143). Therefore, it would have been obvious to a person of ordinary in the art to incorporate the computing of the variances, as taught by Mullen, into the method and system of David in order to enhance the prediction of the agent availability to service the calls.

Regarding claim 18, David discloses everything claimed as applied above (see claim 15). However, David does not specifically disclose an amount of time an agent is occupied by a lower priority task. Although David has disclosed to predict time to a live disposition on outbound calls (Fig. 6, column 4, lines through column 5 line 6).

In the same field of endeavor, Mullen teaches the detail that the resources could be assigned to lower priority tasks (Mullen – paragraph [0006], and paragraph [0010]).

It would have been obvious to a person of ordinary in the art at the time of the invention was made to <u>apply a known technique to a known device</u> (i.e., to recall an agent from lower priority work to work comprising servicing an outbound call) <u>ready for improvement to yield predictable results</u> (see KSR – MPEP 2143). Therefore, it would have been obvious to a person of ordinary in the art to incorporate the use of priority, as taught by Mullen, into the method and system of David in order to enhance the prediction of the agent availability to service the calls.

Response to Arguments

6.   Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Whitman. JR. (US PUB. 2005/0138167 A1) teaches systems and methods for scheduling agents for a network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAI N. NGUYEN whose telephone number is (571)270-3141. The examiner can normally be reached on Monday - Thursday 6:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad F. Matar can be reached on (571) 272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. N. N./
Examiner, Art Unit 2614
09/17/2008

/Ahmad F. Matar/
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